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10/776,597	02/12/2004	Michael S. Sink	A8533	3494

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EXAMINER	
MURALIDAR, RICHARD V	

ART UNIT	PAPER NUMBER
2838	

DATE MAILED: 08/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/776,597	SINK, MICHAEL S.	
	Examiner	Art Unit	
	Richard V. Muralidar	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

FINAL ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> [b] The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, and 47-50 are rejected under 35 U.S.C. 102[b] as being anticipated by Beard et al. [U.S. 5898290].

With respect to Claim 1 [original], Beard discloses a state of charge indicator [Fig. 8 display 111] for determining the current capacity of a battery [Fig. 1, battery pack 10; Fig. 8, battery pack 103; col. 2 lines 43-45], comprising: a housing [Fig. 1, the housing of display 14 inserted into battery pack housing 16, which when inserted into the electronic device 32 of Fig. 3 becomes one integrated housing with device 32. It is also possible to separate each of these housings from each other]; a microprocessor disposed in said housing [Fig. 7, microprocessor 64; control circuitry 323 in Fig. 12] and operable to determine current state of charge [col. 4 lines 59-63; col. 7 lines 44-46] for a plurality of different battery types [col. 5 lines 11-13]; and a sensing device located in one of said housing and said battery [Fig. 11, monitoring circuit 229], and electrically connected to said microprocessor, to measure voltage drop in said battery [Fig. 7, direct connections to the batteries are shown for voltage measurements]; wherein said housing is removably attachable to said battery [as shown in Fig. 2, and in Fig. 3; all

three of the housings listed above can be removed or attached to the battery, separately or as a whole].

With respect to Claim 47 [new], Beard discloses that the majority of the state of charge indicator is inserted into said battery [Fig. 1, display 14 is flush mounted to the outer surface of battery pack 10, which means the majority of display 14 is inside of battery 10].

With respect to Claim 48 [new], Beard discloses said battery hosts the state of charge indicator [as shown in Fig. 1, battery pack 10 hosts display 14].

With respect to Claim 49, [new] Beard discloses said housing is an external housing [the outer housing of display 14] and wherein said external housing of the state of charge indicator is inserted into the battery so that most of the external housing of the state of charge indicator is inside a cavity provided on an external housing of said battery [display 14 is fully inserted into battery 10, with the exception of the upper surface being visible].

With respect to Claim 50, [new] Beard discloses said microprocessor determines the current state of charge by counting down coulombic drain from said battery [this is implicitly occurring since the display 14 indicates capacity as a diminishing percentage as the battery is discharged].

Claims 1, 5,10, 20, 30, 33, 34, and 46 are rejected under 35 U.S.C. 102[b] as being anticipated by Myslinski [U.S. 5477129].

With respect to Claim 1 [original], Myslinski discloses a state of charge indicator for determining the current capacity of a battery [col. 1, lines 15-19], comprising: a housing [Fig. 1, portable computer 10]; a microprocessor disposed in said housing [Fig. 3, microprocessor 14] and operable to determine current state of charge [col. 4 lines 11-12] for a plurality of different battery types [col. 4 lines 26-28]; and a sensing device located in one of said housing and said battery, and electrically connected to said microprocessor, to measure voltage drop in said battery [Fig. 3, microprocessor 14 senses battery pack 16 voltage through electrical connections 18; col. 1 lines 25-26; col. 4 lines 33-36]; wherein said housing is removably attachable to said battery [battery pack 16 may be removed from the laptop computer 10].

With respect to Claim 5 [amended], Myslinski discloses a fastener for securing said housing to the battery [the fastener would be the battery port cover, located underneath the portable computer 10 shown in Fig. 1], wherein the battery is a non-rechargeable battery [col. 8 lines 16-20].

With respect to Claim 10 [amended], Myslinski discloses a display [Figs. 4, 5A-F, 7A-F, battery charge level indicator 20] disposed in said housing operable to show the current state of charge of said battery and wherein said display is operable to indicate the current state of charge in percentages with respect to a full capacity of the battery [col. 5 lines 15-50].

With respect to Claim 20 [original], Myslinski discloses a system for determining state of charge of a battery [col. 1, lines 15-19] comprising: a battery [battery pack 16, col. 4 line 25] having a sensing device to measure battery capacity [Fig. 3, microprocessor 14 with electrical leads 18 is the sensing device of battery pack 16]; a reusable state of charge indicator [Fig. 1, laptop computer 10 with charge level indicator 20] having a microprocessor [Fig. 3, microprocessor 14] compatible with different battery types [col. 4 lines 26-28] and operable to determine state of charge based on value received from said sensing device [Fig. 3, microprocessor 14 senses battery pack 16 voltage through electrical connections 18; col. 1 lines 25-26; col. 4 lines 33-36]; and at least one contact [Fig. 3, contacts from either of electrical leads 18] electrically connecting said state of charge indicator to said battery for providing voltage drop information from said sensing device, wherein said state of charge indicator is removably attachable to said battery [battery pack 16 may be removed from laptop computer 10 at any time].

With respect to Claim 30 [amended], Myslinski discloses said display means is a fuel gage indicating capacity of said battery in increments [Figs. 4 and 5A-F, battery charge level indicator 20].

With respect to Claim 33 [amended], Myslinski discloses said battery is a lithium non-rechargeable battery [col. 8 lines 16-20; an alkaline non-rechargeable battery is disclosed, however Myslinski is fully capable of operating with a lithium non-rechargeable battery].

With respect to Claim 34 [amended], Myslinski discloses said battery is a military non-rechargeable lithium battery [col. 8 lines 16-20; an alkaline non-rechargeable battery is disclosed, however Myslinski is fully capable of operating with a military-grade lithium non-rechargeable battery].

With respect to Claim 46 [new], Myslinski discloses that the microprocessor determines the current state of charge indicating amount of energy remaining in said battery with respect to a full capacity of said battery [col. 1 lines 15-19; col. 4 lines 32-36].

Claims 1-3, 6-9, 11-29, 31-32, and 37-45 are rejected under 35 U.S.C. 102[b] as being anticipated by Lutz [U.S. 5686808].

With respect to Claim 1 [original], Lutz discloses a state of charge indicator for determining the current capacity of a battery, comprising: a housing [Fig. 1 docking station 10 combined with docking tray]; a microprocessor disposed in said housing [Fig. 4 charge control circuit U2; col. 5 lines 4-15; col. 7 lines 66-67 and col. 8 lines 1-5] and operable to determine current state of charge [col. 6 lines 12-16] for a plurality of different battery types [col. 1 lines 6-9; col. 6 lines 59-62; col. 7 lines 11-12; col. 7 lines 21-23]; and a sensing device [Fig. 3, resistor 56] located in one of said housing and said battery, and electrically connected to said microprocessor, to measure voltage drop in said battery [col. 6 lines 12-16; col. 7 lines 50-55]; wherein said housing is removably attachable to said battery [the battery is detached from the docking station 10 after being charged].

With respect to Claim 2 [original], Lutz discloses that the housing [Fig. 1 docking station 10] is constructed with a unique shape and keyed such that it will fit only into appropriate said plurality of different battery types [the housing is uniquely shaped and keyed via notches and tabs to engage battery docking tray 41; col. 5 lines 38-50. Docking tray 41 is similarly provided with tabs and notches that protrude into battery openings to hold the battery in place - see Fig. 9 connector 151 for both unique keying and shape].

With respect to Claim 3 [original], Lutz discloses the housing is constructed with a unique shape and keyed so as to fit into said battery in only one orientation for proper mating of interconnecting electrical contacts [col. 5 lines 38-50; col. 5 lines 55-63].

With respect to Claim 6 [original], Lutz discloses said housing is plugged into said battery [col. 5 lines 38-65].

With respect to Claim 7 [amended], Lutz discloses said sensing device [Fig. 3, resistor 56] is electrically connected to said microprocessor [Fig. 4 charge control circuit U2] through at least one contact [Fig. 3, contact 22 at K2] for measuring the voltage drop in said battery [col. 7 lines 51-54] and wherein said at least one contact further provides power from said battery to said microprocessor [Fig. 3, power flow is from battery positive through resistor 56, through contact point 22 at K2, to the microprocessor, and back to the battery negative via the Bat(-) line].

With respect to Claims 8 and 21 [original], Lutz discloses said microprocessor is pre-programmable [col. 3 lines 29-40; col. 5 lines 4-15; col. 8 lines 1-5] to determine state of charge of a particular type of battery chosen from said plurality of different

battery types [col. 1 lines 6-9].

With respect to Claims 9 and 22 [original], Lutz discloses said microprocessor is programmable [col. 3 lines 29-40; col. 5 lines 4-15; col. 8 lines 1-5] to determine state of charge of a particular type of battery chosen from said plurality of different battery types [col. 1 lines 6-9]. Pre-programmable and programmable mean the same thing.

With respect to Claim 11 [original], Lutz discloses said display has a fuel gage showing the current charge of said battery [the LED's of Fig. 1 is a fuel gage at least capable of showing fully charged, discharged].

With respect to Claim 12 [original], Lutz discloses said housing comprises means for outputting the current state of charge to an external device [col. 6 lines 16-18 a smart battery is the external device].

With respect to Claim 13 [original], Lutz discloses said external device comprises at least one of an audio means and a video means [col. 6 lines 16-18; smart batteries with their own built displays are very common in the art. See Beard et al (US-5898290) col. 4 lines 42-67; Figs. 1-5].

With respect to Claim 14 [original], Lutz discloses that when said microprocessor is removed from said battery, said microprocessor is automatically reset [implicit from the circuit of Fig. 4 and interface 70].

With respect to Claim 15 [original], Lutz discloses that when said microprocessor is removed from said battery and reinstalled into said battery, said microprocessor reads a state of charge stored in said battery [Fig. 4 via interface 70 contacts].

With respect to Claim 16 [original], Lutz discloses said sensing device is in the

housing [Fig. 4 R9; col. 7 lines 51-54].

With respect to Claim 17 [original], Lutz discloses said sensing device is in the battery [the contacts 21-28 Fig. 1 that supply a signal to the sensing device will protrude into the battery to make contact, as will connector 151 of Fig. 9].

With respect to Claim 18 [original], Lutz discloses said sensing device is a sense resistor [Fig. 4 R9; col. 7 lines 51-54].

With respect to Claim 19 [original], Lutz discloses that at least one contact electrically connects said microprocessor to said battery for providing additional information from said battery [col. 4 lines 10-13; col. 7 line 5; col. 8 lines 1-5; col. 11 lines 10-13].

With respect to Claim 20 [original], Lutz discloses a system for determining state of charge of a battery comprising: a battery having a sensing device to measure battery capacity [Fig. 3 thermistor 51 in battery pack 52; col. 4 lines 10-14]; a reusable state of charge indicator [Fig. 1 docking station 10 with docking tray] having a microprocessor [Fig. 4 charge control circuit U2] compatible with different battery types [col. 1 lines 6-9] and operable to determine state of charge based on value received from said sensing device [col. 4 lines 10-14]; and at least one contact [Fig. 3 contact K4] electrically connecting said state of charge indicator to said battery for providing voltage drop information [Fig. 3, voltage drop information is extrapolated from temperature provided by thermistor 51] from said sensing device, wherein said state of charge indicator is removably attachable to said battery.

With respect to Claims 23 and 40 [original], Lutz discloses said state of charge

indicator is externally attached to one surface of said battery [the battery is attached on one surface via docking bed 12 and docking tray 41, Fig. 1].

With respect to Claims 24, and 38 [original] Lutz discloses a sealing feature for affixing said housing to the battery [the docking tray 41 effects this seal by securing a snug attachment [col. 5 lines 41-50 and lines 55-57].

With respect to Claims 25, and 39 [original] Lutz discloses a fastener for securing said housing to the battery [col. 5 lines 38-40].

With respect to Claims 26 [amended], Lutz discloses said battery has at least two strings of cells and [this is the normal state of rechargeable batteries, since a single cell would be insufficient to power most of today's electronics, batteries are usually provided with multiple cells in series/parallel as desired. Additionally, Lutz symbolically shows a battery having three cells in battery 52, Fig. 3. The upper most cell can be "one string" and the lowermost two cells can be the "other string"] at least two legs [Fig. 3 one at the positive terminal and the other at the negative terminal] and wherein said state of charge indicator is attached to one leg of said at least two legs and each other leg of said at least two legs has a series resistor [Fig. 3 resistors 55 and 56] for balanced discharge.

With respect to Claims 27 and 42 [original], Lutz discloses said battery has a cavity and wherein said state of charge indicator plugs into said cavity of said battery [the battery cavity accepts connector 151, Fig. 9].

With respect to Claim 28 [amended], Lutz discloses at least one contact [Fig. 3, contact 22 at K2] provides power from said battery to said microprocessor [Fig. 3, power

flow is from battery positive through resistor 56, through contact point 22 at K2, to the microprocessor, and back to the battery negative via the Bat(-) line]

With respect to Claim 29 [original], Lutz discloses a display means [Fig. 1 status LED 1 and 2, discharge LED 15; Fig. 6] for displaying the current state of charge of said battery [specifically if the current state is fully charged or discharged].

With respect to Claim 31 [original], Lutz discloses said display means is disposed in said state of charge indicator [Fig. 1].

With respect to Claim 32 [original], Lutz discloses said display means is one of an audio device and a visual device, connected to said state of charge indicator via output means [col. 6 lines 16-18; smart batteries with their own built displays are connectable. See Beard et al (US-5898290) col. 4 lines 42-67; Figs. 1-5 for an example of a smart battery with built in display].

With respect to Claim 37 [original], Lutz discloses a system of determining state of charge of a battery comprising: a battery having a sensing device to measure battery capacity; a reusable state of charge indicator having a microprocessor to determine state of charge of said battery based on value received from said sensing device; and at least one contact electrically connecting said state of charge indicator to said battery for providing voltage drop information from said sensing device, wherein said state of charge indicator is removably attachable to said battery [met by the preceding limitations of claim 20].

With respect to Claim 38 [original] Lutz discloses a sealing feature for affixing said housing to the battery [the docking tray 41 effects this seal by securing a snug attachment [col. 5 lines 41-50 and lines 55-57].

With respect to Claim 39 [original] Lutz discloses a fastener for securing said housing to the battery [col. 5 lines 38-40].

With respect to Claim 41 [original], Lutz discloses said battery has at least two legs [Fig. 3 one at the positive terminal and the other at the negative terminal] and said state of charge indicator is attached to one leg of said at least two legs and each other leg of said at least two legs has a series resistor [Fig. 3 resistors 55 and 56] for balanced discharge.

With respect to Claim 43 [original], Lutz discloses said battery cavity is uniquely shaped and keyed and wherein said state of charge indicator mates with said cavity and is designed for a particular plurality of batteries [the battery cavity accepts connector 151, Fig. 9 which is uniquely shaped and keyed to fit into the battery cavity].

With respect to Claim 44 [original], Lutz discloses said battery cavity is uniquely shaped and keyed and wherein said state of charge indicator fits only in a proper orientation for mating with appropriate electrical interconnecting contact for electrically connecting said state of charge indicator to said battery [the battery cavity accepts connector 151, Fig. 9 which is uniquely shaped and keyed to fit into the battery cavity, and will only fit in one proper orientation].

With respect to Claim 45 [original], Lutz discloses said state of charge indicator is secured in said cavity by using an interlocking device [col. 5 lines 38-63].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103[a] which forms the basis for all obviousness rejections set forth in this Office action:

> [a] A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103[a] as being unpatentable over Lutz [U.S. 5686808] in view of Garcia et al. [U.S. 5607791].

With respect to Claim 4 [amended] Lutz discloses a sealing feature for affixing said housing to the battery [the docking tray 41 effects this seal by securing a snug attachment [col. 5 lines 41-50 and lines 55-57]. Lutz does not disclose the sealing feature is an O-ring.

Garcia discloses a sealing feature [Fig. 2, gasket 280; an O-ring can be a gasket- see Wikipedia reference enclosed] used to affix and seal battery housing 240 against the surface of a substrate, in order to protect electrical contacts 260 though each corresponding slot 248 from external contamination [Fig. 2, col. 3 lines 6-17].
Lutz and Garcia are analogous means of interfacing batteries with electrical devices. At the time of the invention it would have been obvious to one of ordinary skill in the art to utilize a gasket between the battery housing and the charging contacts on the dock, as suggested by Garcia, for the benefit of sealing out environmental contamination from and protecting the charging contacts [col. 3 lines 6-17].

Claims 35-36 are rejected under 35 U.S.C. 103[a] as being unpatentable over Lutz [U.S. 5686808].

With respect to Claim 35 [amended], Lutz discloses said battery further comprises a memory chip storing the current state of charge information provided from said microprocessor, and said at least one contact electrically connects said microprocessor with said memory chip [it is understood that Lutz's battery charger is a universal battery charger explicitly capable of charging smart batteries col. 6 lines 16-18. Thus it is sufficient to show that one of his listed battery types in col. 1 lines 6-9 can have a memory chip. Smart batteries implicitly have memory chips, and one such example can be found in Beard et al (US-5898290) Fig. 11 battery 201 with memory chip 227; col. 5 lines 11-12].

With respect to Claim 36 [original], Lutz discloses said battery further comprises a plurality of receptacles corresponding to said plurality of contacts in said state of charge indicator [Fig. 1 contacts 21-28] and a label covering said receptacles [this is just the protective label that covers the contacts of any newly purchased battery. Most new batteries (as Lutz's batteries must have been at one time) come with some sort of label to cover their contacts. If the label is removed, it indicates to a user the battery is used, if not, the battery must be new].

Response to Arguments

On page 1 of the remarks, applicant requests withdrawal of the objection to claim 34 as previously presented. The objection to the previously presented claim 34 stands, because it contains reference to a standard that may become obsolete with the passing of time. MIL-PRF-49471B contains battery-operating requirements suitable to current military needs today, which can change as the needs of the military change in the future.

Applicant's arguments filed 05/24/2006 have been fully considered but they are not persuasive.

Applicant argues on page 19 of remarks that Lutz [U.S. 5686808] does not teach determining the capacity (state of charge) of a battery, but only teaches, "determining the state of charging or discharging." The examiner is not convinced by this argument since the two are used synonymously in the art of SOC determination. Additionally, new references introduced to address claim 1 (for the purpose of meeting several of the later amended dependent claims) also meet the limitation of determining capacity of a battery.

Applicant's arguments on pages 15, 16, and 17 are directed towards amended claim language and have been addressed in the corresponding claims above, or have been overcome by the introduction of new art, as cited above.

Applicant argues effectively on page 18 that the removable label is a useful feature of the invention for indicating whether or not a battery has been used. Accordingly, "irrelevant" has been removed from the examiner's argument of Claim 36;

however, a removable label is not a novel concept. Most new batteries come with some sort of label to cover their contacts. If the label is removed, it indicates to a user the battery is used, if not, the battery must be new.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art [US-6829495] by Lee is cited for the disclosure of a battery pack locking apparatus for a cell-phone. Prior art [US-5216371] by Nagai is cited for the disclosure of a battery pack with measuring and indicating means, with locking tabs to detachably connect to batteries.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard V. Muralidar whose telephone number is 571-272-8933. The examiner can normally be reached on Monday to Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on Monday to Friday 8-5. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RVM
08/15/2006

KARL EASTHOM
SUPERVISORY PATENT EXAMINER